

# A Study of Telephone Prescriptions in Family Practice

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Telephone prescriptions are a unique aspect of North American medicine which has received relatively little attention. This paper examines certain behaviors of the physician and the patient with respect to prescriptions in the office and over the telephone. The results indicate that patients receiving prescriptions over the telephone are demographically distinct, tend to receive large amounts of psychotropic drugs, and are more likely to be seen by their physicians as "problem patients." Suggestions are made to help identify the habitual telephone prescription patient to allow the physician to review the need for the medication and the status of the physician-patient relationship.

The nature of prescriptions and the prescribing habits of physicians have been the subject of considerable research interest and several recent reviews.<sup>1,2</sup> In the United States it is estimated that on the average there are four to five prescriptions issued per year, per person.<sup>3</sup> Many studies in this area have been carried out in Great Britain where prescription drugs represent a great financial burden to the National Health Service (£245.75 million in 1974).<sup>1</sup>

Studies on drug prescribing have ranged from analysis of regional differences in prescribing habits,<sup>3</sup> to the influence of social and psychological factors in antibiotic prescribing.<sup>4</sup> Stimson<sup>5</sup> has offered a sociological model of prescribing behavior and the physician-patient interaction. In his review of the literature, Taylor<sup>1</sup> has classified prescription studies as those that describe variations in prescribing frequency and drugs prescribed; those that link prescribing behavior with morbidity (both patient perceptions and physician perceptions); and those that examine the influence of personal attitudes and training as well as sources of information on prescribing behavior.

The influence of the physician-patient relationship on prescribing has received relatively little attention, but there have been several notable exceptions. Sims<sup>6</sup> compared physician attitudes towards emotionally disturbed or neurotic patients and other physician characteristics with the physicians' own estimates of the extent to which they used psychoactive drugs. The only significant correlation was between lower prescribing rates and recent graduation from medical school. Among a group of patients diagnosed as suffering from nonpsychotic depressive reaction in a psychiatric outpatient facility, Shader, Binstock, and Scott<sup>7</sup> found that patients from lower socioeconomic levels received more drug therapy and this was associated with less liking for the patients and increased anger toward them on the part of the prescribing physicians. The authors warned of the importance of "unconscious determinants" in prescription writing.

Balint et al<sup>8</sup> analysed 1,117 prescriptions in general practice. They divided patients into those receiving nonrepeat prescriptions, shorter repeat (less than six months), and long repeat prescriptions (greater than six months). The long repeat group was found to differ from the other two groups in that the patients had more diagnostic labels and a greater proportion of psychiatric

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labels attached to them. They tended to have a higher frequency of indirect contact with their physicians, such as telephone calls, letters, or communications through relatives and friends. These results were interpreted as indicating that the long repeat prescription represents a "truce" in the physician-patient relationship and an unwritten agreement to avoid looking at underlying interpersonal conflicts.

The phenomenon of telephone prescriptions would appear to be unique to North American medicine representing anywhere from 7 to 11 percent of prescriptions issued to adults and 10 to 29 percent of those given to children in six North American centers.<sup>9</sup> Much smaller percentages were found in the European communities involved in the study.<sup>9</sup> Telephone prescriptions are a form of indirect patient-physician contact and therefore patients who use this form of contact repeatedly may be comparable to those in Balint's long repeat prescription group.

The present study was undertaken to test the following hypotheses: (1) patients receiving telephone prescriptions are demographically distinct from those receiving prescriptions in an office contact; (2) patients receiving telephone prescriptions are more likely to be elderly and to have more chronic medical problems when compared to patients receiving prescriptions in the office; (3) telephone prescription patients are more likely to be perceived as "problem patients" by their physicians.

In addition, it was anticipated that the types of drugs prescribed by telephone would be of intrinsic interest.

## Methods

This study was carried out at the teaching unit of the Department of Family Medicine of Dalhousie University in Halifax, Nova Scotia. There were five participating practices consisting of 5 staff physicians, and 4 first-year and 6 second-year residents.

Material was gathered during 2 five-day periods and 1 four-day period in late December 1977 and early January 1978. Each physician was asked to complete a questionnaire every time a prescription was given in an office contact, over the telephone, or in any other type of contact. The questionnaire

consisted of identifying data regarding the patient's age, sex, and the nature of the contact. The physician was then asked to rate each patient on a four point scale (1 = does not apply; 4 = definitely applies) for factors previously identified as being characteristic of the "problem patient."<sup>10-12</sup> These factors included whether the patient presented symptoms in a helpless and complaining way; whether these symptoms were vague, variable, and multiple; and whether the patient cooperated in his or her medical care. Finally, the physician rated his feelings of positivity towards the patient. It was felt that rather than asking the physician if he had negative feelings about the patient, a question to which one would anticipate a hesitancy in replying in the affirmative, essentially the same information could be obtained by scaling the degree of positive feeling.

Also recorded on the questionnaire by the physician were such items as the number of drugs the patient was on, and whether the current prescription was physician or patient initiated or initiated by another physician but continued by the current one. The name of the drug prescribed, days prescribed, and number of refills was also entered.

The medical record of each patient in the study was then reviewed by the author for number of office visits in the preceding 12 months, and number of problems on the problem list. These were subdivided into chronic medical problems (eg, diabetes mellitus, arthritis, hypertension, ischemic heart disease); psychosocial problems (eg, anxiety, depression, alcoholism, marital difficulties); and other problems (self-limited conditions not classifiable in the other two categories).

The patients were divided into two groups based on the nature of contacts. Those who were seen in face-to-face contacts, either in the office or on housecalls were considered together. Telephone contacts represented the other group. These two categories of patients were compared for age, sex, the prescribing physician's assessment of the patient with respect to the "problem patient factors," and the physician's feeling of positivity towards the patient. In addition, the two groups were compared for nature of drug prescribed, number of days prescribed, and number of repeats. Drugs were classified into broad categories by the nature of their pharmacological action.

**Table 1. Number of Patients' Psychosocial Problems by Location of Prescription**

Location	Number of Psychosocial Problems									
	0 Number	%	1 Number	%	2 Number	%	3 Number	%	Total Number	%
Office	81	62.3	35	26.9	9	6.9	5	3.8	130	100.0
Telephone	30	45.5	19	28.8	12	18.2	5	7.6	66	100.0

$\chi^2=8.52$   
df=3  
P<.05

## Results

Of the 228 patients in the study, staff physicians contributed 41 percent and residents contributed 59 percent of all patients entered. However, staff physicians provided data on 67 percent of all patients who received telephone prescriptions and residents contributed the remaining 33 percent. Staff physicians prescribed to only 29 percent of all the office patients in the study, while the residents prescribed to the remaining 71 percent. The high proportion of telephone prescriptions contributed by staff physicians was thought to be due to the staff physicians' better knowledge of the patients and their familiarity with the use of the telephone prescription renewal. It is unlikely that every prescription was entered into the study, although there did not appear to be any systematic selection, either consciously or unconsciously on the part of the physicians involved.

Included in the study were 228 patients who had received a total of 287 prescriptions. Females exceeded males in the study group by a ratio of 1.7:1, there being 142 females (62.3 percent) and 86 males (37.7 percent). Among the telephone prescription group, women represented 70.5 percent, but among office prescription patients they were 58.0 percent.

In general, the telephone prescription patients tended to be older than the office prescription patients. Although females in the entire study group were generally slightly older than the males, this difference was most marked among the telephone prescription group where the gap in average ages widened to nearly ten years (38.2 years of age among the men and 47.0 years of age for the women).

It was hypothesized that patients in the telephone prescription group would have more

chronic medical problems than the office contact group. The data did not support this hypothesis, showing no statistically significant difference between the groups in the number of chronic medical problems listed in their charts. Of interest was the finding that the telephone prescription patients had more psychosocial problems than the office patients (on the average 0.88 and 0.52 problems, respectively). This difference reached statistical significance (Table 1).

Both groups of patients made roughly the same number of clinic visits in the 12 months preceding the study. Those patients with more chronic medical problems and those with more psychosocial problems tended to have more clinic visits.

Of all drugs prescribed, antibiotics lead the list, representing 19.5 percent of all prescriptions issued. This perhaps reflects a high incidence of infectious disease at the time of year of the study (December, January). Psychotropic drugs were the second most common prescription, being 18.8 percent of the total. The category of psychotropic medications included minor tranquilizers, sedatives/hypnotics, and antidepressants. In fact, about 90 percent of the drugs in this category were in the benzodiazepine group, principally diazepam and oxazepam.

The miscellaneous category included drugs not fitting clearly into any of the other groups and individually issued in such small numbers as to preclude separate listing. Cardiovascular drugs consisted principally of digitalis preparations, antihypertensives, beta blockers, and nitroglycerin preparations. The gonadal hormones were largely birth control pills; and narcotic analgesics consisted principally of acetylsalicylic acid-codeine combinations.

Looking at the drugs with respect to location of

Table 2. Drugs Prescribed with Respect to Location\*

	Office		Telephone		
	Number	%	Number	%	
1. Antibiotics	41	22.4	1. Psychotropics	29	27.4
2. Antihistamines/ Decongestants	22	12.0	2. Antibiotics	15	14.2
3. Psychotropics	25	13.6	3. Diuretic drugs	11	10.4
4. Miscellaneous drugs	17	9.3	4. Narcotic analgesics	11	10.4
5. Diuretic drugs	14	7.7	5. Cardiovascular drugs	9	8.5
6. Nonsteroidal anti- inflammatory drugs	12	6.6	6. Miscellaneous drugs	7	6.6
7. Gonadal hormones	11	6.0	7. Antihistamines/ Decongestants	6	5.7
8. Cardiovascular drugs	9	4.9	8. Topical steroids	3	2.9
9. Topical steroids	9	4.9	9. Bronchodilator drugs	3	2.9
10. Gastrointestinal drugs	8	4.4	10. Gonadal hormones	3	2.9

\*These represent the ten most frequent drugs in each category. This accounts for almost 92% of the prescriptions issued in both locations

the prescription, it was found that the psychotropic drugs were the most common class of drugs in the telephone prescription group (Table 2). Antibiotics were the largest category of office prescriptions.

Most patients receiving a psychotropic medication were in the older age categories (72 percent over the age of 40 years for the entire study group). This tendency was more marked for the telephone prescription patients where 52 percent of those receiving psychotropic medication were over the age of 65 years. In contrast, those receiving antibiotics were younger (64 percent were less than 40 years of age).

Of those patients issued a prescription for psychotropic medication, females represented 71.4 percent. Among patients receiving a telephone prescription for psychotropic drugs the percentage of females rose to 81.8 percent.

There was a tendency for telephone prescription patients to be on a greater number of drugs and for telephone prescriptions to be prescribed for longer periods of time, but these differences were not statistically significant.

The physician's perception of the patient to whom he issued the prescription was felt to be an important "unconscious determinant" in prescription writing. In this study it was found that patients receiving a prescription by telephone were seen by their physicians in a less positive light than patients receiving an office prescription

(Table 3). This difference was statistically significant. Telephone prescription patients were also perceived as (a) behaving in a more helpless and complaining way (Table 4), and (b) as less cooperative in their own medical care than office prescription patients (Table 5).

## Discussion

Previous studies have compared physician characteristics to prescribing rates and appropriateness of drugs prescribed. Joyce et al<sup>13</sup> found lower prescription rates correlated with greater postgraduate education and "orientation towards the whole person." In addition, Stolley's<sup>14</sup> results show more appropriate prescribing, as judged by an independent panel, correlating with more postgraduate education, younger, more recent graduates, and greater concern with the psychosocial and quality aspects of health care. The physicians participating in this study were either staff physicians or residents in a model family practice teaching unit and generally open to constructive criticism and oriented toward self-appraisal. The psychosocial and quality aspects of health care are prominent issues in the teaching program. As such, the prescribing habits found in this study likely reflect those of physicians who are judicious in their use of prescribed medication.

Entry into the telephone prescription group of the present study depended on one telephone con-

**Table 3. Physicians' Feelings Toward the Patient by Location of Prescription**

Location	Physicians' Response to Item: "I Have Positive Feelings Toward This Patient"									
	1*		2		3		4		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Office	6	4.0	7	4.7	43	28.7	94	62.7	150	100.0
Telephone	13	16.9	3	3.9	21	27.3	40	51.9	77	100.0

$\chi^2=11.18$   
df=3  
P<.05  
\*1=does not apply; 4=definitely applies

**Table 4. Physicians' Perception of Patients' Manner by Location of Prescription**

Location	Physicians' Response to Item: "Patient Expresses Symptoms in Helpless and Complaining Manner"									
	1*		2		3		4		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Office	100	66.7	20	13.3	22	14.7	8	5.3	150	100
Telephone	41	52.6	17	21.8	10	12.8	10	12.8	78	100

$\chi^2=7.68$   
df=3  
P=.053  
\*1=does not apply; 4=definitely applies

**Table 5. Physicians' Perception of Patients' Cooperation by Location of Prescription**

Location	Physicians' Response to Item: "Patient Cooperates in His/Her Medical Care"									
	1*		2		3		4		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Office	9	6.0	17	11.3	56	37.3	68	45.3	150	100
Telephone	13	16.9	9	11.7	29	37.7	26	33.8	77	100

$\chi^2=7.87$   
df=3  
P<.05  
\*1=does not apply; 4=definitely applies

tact. Clearly, there are people found in this group who do not use this as an habitual form of physician contact. One would anticipate that more discriminating identification of patients who have habitual telephone contacts would make the observed differences even greater.

It was hypothesized that patients receiving telephone prescriptions would be demographically different from those who received office prescrip-

tions. This hypothesis was confirmed in that the telephone prescription patients tended to be older and female when compared to the office prescription group. Almost 33 percent of the telephone group were over the age of 65 years as compared to 20 percent of the office prescription group.

The second hypothesis was not completely borne out in that there were no more chronic medical problems in the telephone prescription group

when compared to the office prescription group. Of particular interest, however, was that there were significantly more psychosocial problems among the telephone prescription patients.

Consistent with the third hypothesis is the observation that the telephone prescription patients when compared to patients in the office prescription group were perceived by their physicians as more helpless and less cooperative in their medical care. Furthermore, they were seen in a significantly less positive light.

In the office and telephone prescription groups taken together, antibiotics constituted the most commonly prescribed category of drugs. This is consistent with other studies of prescribing in North America.<sup>15,16</sup> However, the psychotropic medications, were by far the drugs most commonly prescribed by telephone. There was a tendency for prescription of psychotropic medication to be greater in the telephone prescription group than in the office prescription group, and for an increase in prescription rate with age, especially among females. These results imply that the typical telephone prescription patient was a middle-aged, female, "problem patient," who was most likely to receive a prescription for a psychotropic agent. This is very similar to the patient profile of heavy users of outpatient drugs who were also found to be predominately female, older, and receiving a high proportion of sedative/hypnotic drugs. As well, they were found to have more psychiatric problems than light users of outpatient drugs.<sup>17</sup>

In a survey of mood modifying drugs issued to ambulatory patients in a Canadian city, Cooperstock and Sims<sup>18</sup> found that women constituted 69 percent of patients receiving such drugs. They concluded that there are "more women than men going to physicians, more women than men receiving prescriptions for any drugs, and an even greater disproportion in the number of women receiving prescriptions for mood modifying drugs." The present study goes further in suggesting that these patients receive a disproportionate amount of such prescriptions over the telephone without the benefit of a direct contact with the physician.

The results of this study suggest that the telephone contact and telephone prescription may represent a compromise in a strained physician-patient relationship, similar to Balint's long repeat-prescription group. Further studies in this

area could be usefully directed toward more clearly identifying the habitual telephone prescription patient.

Addition of a telephone prescription flow sheet to each patient's medical chart would serve to bring to the physician's attention those patients who are receiving a large amount of drugs in this manner. Perusal of such a flow sheet and the patient's chart before renewing a prescription on the telephone would simplify the identification of habitual telephone prescription patients and allow the physician to review his purpose in prescribing the medication and the status of the physician-patient relationship.

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#### References

1. Taylor RJ: General-practitioner prescribing. *J R Coll Gen Pract* 27:79, 1977
2. Hemmenki E: Review of literature on the factors affecting drug prescribing. *Soc Sci Med* 9:111, 1975
3. Stolley PD, Lasagna L: Prescribing patterns of physicians. *J Chron Dis* 22:395, 1969
4. Howie JGR: Clinical judgement and antibiotic use in general practice. *Br Med J* 2:1061, 1976
5. Stimson GV: Doctor-patient interaction and some problems for prescribing. *J R Coll Gen Pract* 26 (suppl 1):88, 1976
6. Sims M: Family practitioners and the prescription of psychoactive drugs. *Can Fam Physician* 18:79, 1972
7. Shader RI, Binstock WA, Scott D: Psychiatrists' biases: Who gets drugs? *Soc Sci Med* 2:213, 1968
8. Balint M, Hunt J, Joyce D, et al: Treatment or Diagnosis: A Study of Repeat Prescriptions in General Practice. London, JB Lippincott, 1970
9. Kohn R, White K: Health Care: An International Study. London, Oxford University Press, 1976
10. Fabrega H, Moore RJ, Strawn JR: Low income medical problem patients: Some medical and behavioral features. *J Health Soc Behav* 10:334, 1969
11. Malcolm R, Foster HK, Smith C: The problem patient as perceived by family physicians. *J Fam Pract* 5:361, 1977
12. Drossman DA: The problem patient: Evaluation and care of medical patients with psychosocial disturbances. *Ann Intern Med* 88:366, 1978
13. Joyce CRB, Last JM, Weatherall M: Personal factors as a cause of differences in prescribing by general practitioners. *Br J Prev Soc Med* 22:170, 1968
14. Stolley PD, Becker MH, Lasagna L, et al: The relationship between physician characteristics and prescribing appropriateness. *Med Care* 10:17, 1962
15. Stolley PD, Becker MH, McEvilla JD, et al: Drug prescribing and use in an American community. *Ann Intern Med* 76:537, 1972
16. Dixon AS: Drug use in family practice: A personal study. *Can Fam Physician* 24:345, 1978
17. Lech SV, Friedman GD, Ury HK: Characteristics of heavy users of outpatient prescription drugs. *Clin Toxicol* 8:599, 1975
18. Cooperstock R, Sims M: Mood-modifying drugs prescribed in a Canadian city: Hidden problems. *Am J Public Health* 61:1007, 1971